

# INTRODUCTION

The City of Morgan Hill provides an ideal environment for cycling. Located in southern Santa Clara County, the City is located on relatively flat terrain and enjoys a temperate climate with summer and winter temperature extremes moderated by its proximity to the coast. As a relatively small city, with a 2000 population of 33,000, any area of the city is accessible by bicycle.

Morgan Hill is also blessed with scenic surroundings, including many rural roads frequented by recreational cyclists that lead to the adjacent hills and agricultural lands.

While Morgan Hill provides great cycling potential, the current bikeways system does not address all of the City's bicycling needs:

- Many key roads are not currently bicycle friendly (lack of bicycle lanes, wide striped shoulders or wide outside lanes) leading to gaps in connectivity.
- Irregular City limits result in many desirable routes that are outside of the City's jurisdiction. Narrow County rural roads with unpaved shoulders contribute to connectivity gaps.
- Many intersections and railroad crossings are not built to current safety standards and some roads have obstructions to safe bicycle travel.
- While bicycle paths along creeks and drainage ways have been envisioned, many have not been completed.
- Connections to regional trails, such as the Coyote Creek trail, are not clearly established.
- Bicycle parking facilities are inadequate in some locations.

With these issues in mind, and recognizing the community's outstanding potential for cycling, the City's Bicycle Advisory Committee engaged in preparation of a Bikeways Master Plan in 1999.

## Goals

Goals of the Bikeways Master Plan included the following:

- Inventory and evaluate existing cycling conditions.
- Assess potential bicycle connections to residential areas, commercial and employment centers, community facilities, schools, parks and regional trails.
- Evaluate the potential to expand pathways along creeks and drainage ways.
- Suggest improvements to existing and proposed routes to enhance bicycle safety, such as intersection improvements and railroad crossings.
- Evaluate existing and potential bicycle parking facilities.
- Evaluate existing and potential bicycle safety and promotion programs.
- Establish an estimate of capital costs to implement the Bikeways Master Plan over time.

## Benefits

The Bikeways Master Plan will allow the City to be more “proactive” and systematic in achieving a more safe and efficient cycling environment.

- **Safety, Commuting and Recreation** The Bikeways Master Plan encourages bicycle safety and use of bicycles for commuting and recreational purposes.
- **Competitive Grant Funding** With a Bikeways Master Plan, the City will be more competitive in applying for grant funding to implement the plan.
- **Incremental Improvements** It is not possible or even desirable to implement all the proposed capital improvements at once. The Bikeways Master Plan serves as a blueprint to ensure that phased improvements are consistent with an overall plan.
- **Coordination with Development** Some improvements in the Bikeways Master Plan can be implemented over time and linked to development conditions as development occurs.
- **Coordination with Roadway Improvements** Many of the proposed improvements in the Bikeways Master Plan can be implemented concurrently with proposed roadway improvements, resulting in minimal or no additional costs to the City.

- **Multi-Agency Coordination** The Bikeways Master Plan encourages coordination between many City departments (such as police, recreation and public works), Santa Clara County, Valley Transportation Authority, Morgan Hill Unified School District, Santa Clara Valley Water District, and other agencies and organizations, to promote a safe cycling environment.

## Process

The Bikeways Master Plan was developed through a public process with the active participation of the Bicycle Advisory Committee (BAC). Initial meetings included a bicycle ride through town with the consultant team and BAC members. Draft planning maps were made available to the public at numerous locations throughout the City and at the City's web site. All of the BAC meetings have been open to the public, and the Draft Bikeways Master Plan will be reviewed in public meetings before the BAC, Parks and Recreation Commission, and City Council.

## Land Uses

Existing land uses include several commercial areas located on major transportation corridors. These include shopping centers on Dunne, Cochrane and Tennant/ Edmundson West of Highway 101; the downtown core on Monterey Road and additional commercial development north and south of the downtown on Monterey. City parks are located throughout the City and County parks are located to the northwest (Coyote Park chain) and southwest (Silveira Park). The Coyote Creek trail to the northeast is a significant recreational and bicycle commuter link to San Jose. Residential development and schools occur throughout the city, with significant new residential development occurring to the northeast. Other land uses relevant to the Bikeways Master Plan include the hotel/motel developments along Condit Road, as well as the Soccer Complex, also on Condit Road.

Following is a list of schools and parks located in the City as well as a draft land use map from the City's on-going General Plan Update.

Map insert

#### Community Parks

Community Park (225 W. Edmundson Ave.)  
Galvan Park/Friendly Inn (Crest Ave.)

#### Neighborhood Parks

Diana Park (Diana Ave.)  
Oak Creek Park (Prancer Court)

#### Neighborhood/ School Parks

Nordstrom Park (Murphy Ave.)  
Paradise Park (Lacrosse Dr.)

#### Mini Parks

Belle Estates Park (Calle Caballeria)  
Conte Gardens Park (Conte Way)  
Diana Estates Park (Diana Ave.)  
Fox Hollow Park (Fox Hollow Circle)  
Hamilton Square Park (Via Corfinio)  
Howard Weichert Park (Via Del Castille)  
Jackson Park (Trail Dr.)  
La Grande Estates Park (Via Castana Dr. &  
Via Castana Ct.)  
Mill Creek Park (La Arboleda Way)  
Murphy Springs Park (Murphy Springs Ct.)  
Rose Haven Park (San Ramon Dr.)  
Sanchez Park (Sanchez Dr.)  
Stone Creek Park (Rosemary Circle)  
21 Mile Park (Edmundson & Monterey Rd.)

#### MHUSD Schools

Britton Middle School (80 W. Central Ave.)  
Burnett Elementary (85 Tilton Ave.)  
Central High/Community Adult School  
(17960/17940 Monterey Street)  
El Toro Elementary (455 E. Main)  
Gavilan College (15750 Vineyard Blvd.)  
Jackson Elementary (2700 Fountain Oaks Dr.)  
Live Oak High School (1505 E. Main Ave.)  
Nordstrom Elementary (1425 E. Dunne Ave.)  
Paradise Valley Elementary (1400 La Crosse  
Dr.)  
Walsh Elementary (353 W. Main Ave.)

#### Other Schools

Saint Catherine's School (17500 Peak Ave.)  
South County Christian School (145 Wright  
Ave.)

## Coordination with Other Plans

The Bikeways Master Plan has been prepared in coordination with the City's General Plan Update. It is also consistent with the County of Santa Clara Trails Master Plan (1995), the Santa Clara County Bicycle Plan (1994), the Valley Transportation Authority's Bicycle Technical Guidelines (1999), the Santa Clara Countywide Bicycle Plan (2000), and the Caltrans Highway Design Manual.

## Increased Bicycle Use

A major statewide goal for the Bikeways Master Plan is to reduce air pollution by increasing use of bicycles for commuting, thereby reducing automobile use and emissions. 1990 Census data indicates that in Morgan Hill 52 people, or .4% of those working, used a bicycle to get to and from work. With the improvements recommended in the Bikeways Plan, this could be expected to increase to 2% or approximately 500 people based on General Plan population projections. 2% has been chosen as an achievable goal based on the averages of similarly urbanized counties: San Luis Obispo, Santa Barbara and Santa Cruz Counties. (It should be noted that all three counties have a major university campus which may account for increased bike commuters, but the recent sale of the St. Louise Hospital site to the San Jose Bible College may bring a four year college to Morgan Hill and similar "campus" characteristics. In addition, the Gavilan College satellite campus proposed for the Community Center will increase ridership potential.)

In addition to increasing ridership of work commuters over the age of 16, an additional goal is to increase cycling to school. A majority of children in grades 3-6 living within one mile of schools and a majority of children in grades 7-12 live within 2 miles of schools, should be encouraged and be able to safely walk or bicycle to school. Even a modest goal of 5% - 10% ridership for public school enrollment would yield approximately an additional 500 - 1,000 riders for a total of 1,000 - 1,500 commute/school related trips by 2020.

The following planning map of existing and proposed bikeways was developed to meet both commuting and recreational needs throughout the City, and takes into account a wide range of cyclists.

# RECOMMENDED BIKEWAY NETWORK

The following planning map of existing and proposed bikeways was developed to meet both commuting and recreational needs throughout the City, and takes into account a wide range of cyclists.

Types of Cyclists	Cycling needs can vary greatly depending on the age, experience and purpose of the cyclist.
Age	Cyclists range in age from young children to senior adults. Busy streets may be appropriate routes for experienced adult riders, while grade-separated pathways or streets with low traffic volume are more appropriate for young children.
Experience	Not all riders are experienced cyclists. Routes with steep grades and high traffic volumes may not be comfortable for beginning cyclists.
Purpose	<p>Commute cyclists use their bicycles as a means of getting to and from specific locations, such as home, school, work, shopping, sporting events, etc. Experienced commute cyclists prefer the most direct route and are comfortable riding on roads with high traffic speeds and volumes.</p> <p>Recreational cyclists use their bicycles as a means of recreation and exercise and would prefer a scenic route to the most direct route. Some recreational cyclists may prefer a steeper route for cardiovascular training.</p> <p>The Morgan Hill Bikeways Plan has been designed with this diversity of users in mind. For example, the most direct routes for commute cyclists may not be appropriate for recreational or beginning cyclists. Similarly, some of the paths and routes on lower volume streets may appeal more to families and recreational cyclists than to commute cyclists.</p>

## Bikeway

### Classifications

Bikeway Classifications in the plan are consistent with the Caltrans Highway Design Manual (HDM) and the VTA Bicycle Technical Guidelines. Quotations noted below are from the HDM, chapter 1000.

#### Class I: Bike Path

Bike paths are “completely separated” from the automobile roadway “with cross flows by motorists minimized.”

#### Class II: Bike Lanes

Bike lanes are striped for “preferential use by bicycles within the paved area” of streets or highways. “Bike lane stripes are intended to promote an orderly flow of traffic, by establishing specific lines of demarcation between areas reserved for bicycles and lanes to be occupied by motor vehicles. This effect is supported by bike lane signs and permanent markings.”

#### Class III: Bike Routes

“Class III facilities are shared... with motor vehicles on the street. Class III facilities are established by placing Bike Route signs along roadways.”

#### Class III B: Bike Routes with Shoulders

In addition to these classifications from the Highway Design Manual, the Morgan Hill Bikeways Plan includes a Class IIIB designation for Bike Routes with paved and striped shoulders. In essence, a Class IIIB route functions similarly to a Class II Bike Lane, but is preferable in rural conditions where additional signage and bike lane designations are not desirable or necessary. The Class IIIB designation is included in the VTA Bicycle Technical Guidelines.

### Bikeways Map & Highlighted Routes

The following Bikeways Map identifies existing and proposed future bike paths, lanes, and routes. This proposed bikeway network improves connectivity throughout the City and to regional bikeways. It addresses the needs of both experienced commute cyclists and novice recreational cyclists.

The Bikeways Map is a *planning* map. Many of the routes are proposed only and bicycle improvements are not yet in place.



## Private Roads

A few of the roads in the bikeways planing map are private roads. These roads would only be designated as part of the bikeways system if there were an agreement between the City and the Homeowners Association for such a designation. Such an agreement would need to take into account liability, responsibility for striping and signage, and long-term maintenance. Private roads are indicated on the highlighted routes.

## New School Location

Two alternative sites have been considered by MHUSD for a new high school. Routes have been designated to allow for easy access to either site. Now that MHUSD has selected the Sobrato site for the proposed new high school, connections to this site should be considered the highest priority. However, bicycle connections to the Tennant site are still shown on the plan as a backup.

## Costs

Itemized costs for the proposed improvements on the bikeways map are included in the Cost Summary Spreadsheet in Appendix 1.

Total City costs to implement the highlighted routes is estimated at \$7,018,218. Some assumptions were used to determine these costs:

- Costs for striping and signing of proposed roads are assumed to be included in overall roadway improvement costs and are not itemized as a part of this plan.
- Some existing roads will need to be widened to accommodate proposed bicycle facilities. These widening costs are included in the itemized costs although the widening may be part of a larger roadway project (see the Implementation Section). Widening costs are far more substantial than signing or striping, and can equal 60–90% of the total project cost.
- Infrastructure improvements that may be required as a part of widening (such as realignment of lights, drainage facilities, etc.), are not included.
- The Bikeways Plan includes two bicycle pedestrian bridges across Highway 101 (at Diana and Barrett Avenues). The Barrett Avenue bridge is proposed only if the new high school is built at the Tennant Avenue site, which seems unlikely at this time. The Diana Avenue bridge would create a low automobile

volume "bicycle boulevard." Costs for the bridge are high (\$2,000,000). It is assumed the bridge would only be implemented if non-City funding sources, such as a State or Federal grant, became available.

## Priority Projects

The improvements shown on the Bikeways Map will be implemented over time. To assist in establishing appropriate phasing packages, highlighted routes have been identified and are also illustrated.

The BAC has identified the following highlighted routes as the highest priority for implementation. These routes were selected as the highest need to improve safety, and enhance both commute and recreational cycling.

- **Live Oak High School Access** These improvements are important to achieve safe bicycle routes to a major school.  
Estimated City Cost: \$323,447  
Estimated County Cost: \$524,850
- **West Little Llagas Creek Trail** This provides an excellent recreational path along a drainage corridor as well as an alternative commute route parallel to Monterey Road. A portion of this trail is also included on the Countywide Bicycle Plan "Tier 1" list of projects with allocated funding.  
Estimated City Cost: \$873,125  
Estimated County Cost: \$290,530
- **Santa Teresa and Monterey Highway Corridor Improvements** These corridors are important commute bikeways and provide regional connections.  
Estimated City Cost: \$1,100,835  
Estimated County Cost: \$544,465
- **East West Connection to Coyote Creek Trail** These improvements will provide improved community connections to the popular recreation/commute path running north to San Jose along Coyote Creek.  
Estimated City Cost: \$542,309  
Estimated County Cost: \$738,661

These costs include some roadway widening to accommodate safe bicycle lanes and routes. It is assumed in most cases that widening will occur concurrent with development and as a part of larger roadway projects so that the costs of implementing the Bikeways Plan are minimized. A possible exception to this is on East Main Avenue, where widening should be considered in advance of development to improve safe bicycle access to Live Oak High School.

## Highlighted Routes

The highlighted routes illustrate key portions of the overall Bikeways Map that serve specific functions (such as commute routes through town or improving school access), and improve connections to regional bikeways (such as connections to the Coyote Creek Trail). Each highlighted route map shows the key bikeways elements for that specific route in color, and adjacent bikeways elements in black and white. A fold-out legend is found following the highlighted routes.

Bike map 1

Bike map 2

## 1 - Live Oak High School Access

Designation and Description:	Class 2: Elm Road from Half Road to East Main Avenue; Mission View Drive from Half Road to Cochrane Road; Half Road from Condit Road to Elm Road; East Main Avenue from Condit Road to Elm Road
Significance:	Provides access to Live Oak High School from surrounding residential areas. Connects High School to city-wide bicycle path system
Implementation Measures:	Class 2 lane improvements; Traffic signal <sup>1</sup> at Mission View Drive/Cochrane Road; Intersection improvement <sup>1</sup> and traffic signal <sup>1</sup> at Condit Road/East Main Avenue
Length:	Class 2: 12267'
Cost:	\$848,296
Notes:	<sup>1</sup> Cost not included: planned by city as part of transportation improvements

## 2 - Little Llagas Creek Trail

Designation and Description:	Class 1: Little Llagas Creek Trail from Ciolino Avenue to Silveira Park Trail
Significance:	Safe North/South recreation corridor through center of town. Connects to southern east/west connector and mid-town east/west connector.
Implementation Measures:	Class 1 Shared-use path improvements; Median refuges at intersections of Little Llagas Creek Trail with Ciolino Avenue, Cosmo Lane, West Edmundson Avenue, La Crosse Circle North, La Crosse Circle South, Watsonville Road
Length:	Class 1: 17253'
Cost:	\$1,231,400
Notes:	

### 3 - Santa Teresa Corridor

Designation and Description:	Class 2: Hale Avenue, Future Realignment of DeWitt Avenue from West Main Avenue to Spring Avenue <sup>1</sup> , West Dunne Avenue from Peak Avenue to Future Realignment of DeWitt Avenue (Costs included in detail sheet #10), South End Future Realignment of DeWitt Avenue
Significance:	Portion of city perimeter bike path system: ties to southern and northern east/west connectors. Major route on west side of Morgan Hill.
Implementation Measures:	Class 2 lane improvements; class 3 route improvements; class 3b route improvements; Traffic signals <sup>2</sup> at Madrone Parkway/Hale Avenue and Sunnyside Avenue/Watsonville Road; Median Refuges at Sunnyside Avenue/Llagas Creek Trail and Santa Teresa Boulevard/Silv
Length:	Class 2: 26184'; Class 3: 2285'; Class 3b: 5512'
Cost:	\$1,318,016
Notes:	<sup>1</sup> Future road improvement costs are not included: Bicycle improvements should be part of overall transportation projects; <sup>2</sup> Cost not included: planned by city as part of transportation improvements



3 map

#### 4 - Monterey Highway Corridor

Designation and Description:	Class 2: Monterey Highway/Monterey Road from Burnett Avenue to California Avenue
Significance:	Major North/South connector through the center of Morgan Hill
Implementation Measures:	Class 2 improvements; railroad crossings at Madrone Parkway/Monterey Highway and intersection of Monterey Highway/rail tracks (near east end of Llagas Road); Traffic signals <sup>1</sup> at Monterey Highway/Peebles Avenue and Monterey Highway/Madrone Parkway
Length:	Class 2: 29627'
Cost:	\$370,244
Notes:	<sup>1</sup> Cost not included: planned by city as part of transportation improvements

4 map

## 5 - Barrett between Butterfield & Trail

Designation and Description:	Class 2: Barrett Avenue from Butterfield Road to Hill Road Class 3b: Barrett Avenue from Hill Road to Trail Drive
Significance:	East/West connector and link to potential future high school site
Implementation Measures:	Class 2 lane improvements; Class 3b route improvements; Bicycle/Pedestrian bridge <sup>1</sup> across Highway 101
Length:	Class 2: 7758'; Class 3b: 2530'
Cost:	\$1,243,638
Notes:	<sup>1</sup> Bridge may be implemented as a later phase, add \$2,000,000

6 - Dunne Ave. between Bayo Claros and Gallop

Designation and Description:	Class 2: Dunne Avenue from Bayo Claros to Gallopp Drive
Significance:	Extends already existing lanes to residential areas in East Morgan Hill. Important Mid-town/East/West connection.
Implementation Measures:	Class 2 lane improvements; Traffic signal <sup>1</sup> at East Dunne Avenue/Hill Road
Length:	Class 2: 4411'
Cost:	\$662,784
Notes:	<sup>1</sup> Cost not included: planned by city as part of transportation improvements

## 7 - Hill Road/Water District Trail

Designation and Description:	Class 1: Tennant Creek Trail from East Dunne Avenue to Middle Avenue Class 3b: Hill Road from East Main Avenue to Maple Avenue
Significance:	Portion of city perimeter bike path system: ties to east/west connector and Coyote Creek Trail connector. Major route for east side of Morgan Hill.
Implementation Measures:	Class 1 Shared-Use Path improvements; Class 3b Route improvements; Median refuges at Tennant Creek Trail/Hill Road crossing and Hill Road/Fountain Oaks Drive; Traffic Signal <sup>1</sup> at Hill Road/East Dunne Avenue
Length:	Class 1: 13946'; Class 3b: 14497'
Cost:	\$3,236,935
Notes:	<sup>1</sup> Cost not included: planned by city as part of transportation improvements

## 8 - Cochrane Road Connection to Coyote Creek Trail

Designation and Description:	Class 3: Malaguerra Avenue from Morning Star to Coyote Creek Connection <sup>1</sup> 3b: Cochrane Road from Mission View Drive to East Main Avenue; Malaguerra Avenue from Cochrane Road to Morning Star
Significance:	East/West and North/South connection to Coyote Creek Trail: ties city bike path system to regional bike and park system. Important connection to recreational resource.
Implementation Measures:	Class 3 improvements; Class 3b improvements
Length:	Class 3: 1215'; Class 3b: 10659'
Cost:	\$1,441,764
Notes:	<sup>1</sup> Existing fire road to be improved for bicycle path use

## 9 - East/West Connection to Coyote Creek Trail

Designation and Description:	Class 1: Coyote Creek Connection from Burnett Avenue to Malaguerra Extension, Connector from Burnett Avenue to Potential Future High School Site <sup>1</sup> , Connectors from Clayton Avenue and Taylor Avenue to Madrone Parkway and from Vista de Lomas to Proposed Bike
	Class 2: Cochrane Road, Madrone Parkway <sup>2</sup> , Curry Avenue <sup>2</sup> , Dougherty Drive <sup>2</sup> , Saffron Drive <sup>2</sup> , Connectors from Madrone Parkway to Cochrane Road <sup>2</sup>
	Class 3: Peebles Avenue from Taylor Avenue to Freeway Vista <sup>5</sup> , Freeway Vista <sup>5</sup> , Vista de Lomas <sup>5</sup> , Clayton Avenue <sup>5</sup> , Taylor Avenue <sup>5</sup>
	Class 3b: Tilton Avenue, Burnett Avenue
Significance:	East/West Connection to Coyote Creek Trail: ties city bicycle paths to regional park and path system. Important connection to recreational resource. Allows for safe railroad crossing at Madrone Parkway.
Implementation Measures:	Class 1 Shared Use Path Improvements; Class 2 Bike Lane Improvements; Class 3 & 3b Route Improvements; Bike/Pedestrian Bridge <sup>3</sup> at Coyote Creek Trail Connection; Railroad Crossing at Madrone Parkway/Monterey Highway; Traffic Signals <sup>4</sup> at Peebles Avenue/Mont
Length:	Cochrane Road from Monterey Highway to Mission View Drive: 6704'; Madrone Parkway: 4724'; Peebles Avenue from Taylor Avenue to Freeway Vista: 3757'; Burnett Avenue: 6007'; Coyote Creek Connection: 3406'; Tilton Avenue: 2122'; Curry Avenue: 1175'; Sanchez D
Cost:	\$560,085
Notes:	<sup>1</sup> Connection to potential future high school site would be implemented only if this site is selected and approved for future high school; <sup>2</sup> Future road improvement costs are not included: bicycle improvements should be part of overall transportation projects



9 map

## 10 - Community Center Connections

Designation and Description:	Class 2: West Dunne Avenue from Peak Avenue to Butterfield Road Class 3: Church Street
Significance:	Provides improved connections to the Community Center at Dunne Avenue/Monterey Road
Implementation Measures:	Class 2 Lane improvements; Class 3 Route improvements; Railroad crossing at 2d Street/Monterey Road; Pedestrian/Bicycle/Vehicle Bridge <sup>1</sup> at Depot Street/East Dunne Avenue
Length:	Class 2: 2681'; Class 3: 4936'
Cost:	\$513,337
Notes:	<sup>1</sup> Bridge may be implemented as a later phase: add \$2,000,000

## 11a - Business Park Access

Designation and Description:	Class 2: Butterfield Road from Cochrane Road to East Main Avenue; Serene Drive from Sutter Boulevard to East Main Avenue; East Main Avenue from Church Street to Butterfield Road and from East End of El Toro Elementary School to Grand Prix Way
Significance:	Provide access to Business Park: links to East/West and North/South connectors. Important for home/work commuters. Provides access to El Toro Elementary School
Implementation Measures:	Class 2 Lane improvements
Length:	Class 2: 12516'
Cost:	\$346,316
Notes:	

## 11b - Business Park Access

Designation and Description:	Class 2: Tennant Avenue from Monterey Road to Vineyard Boulevard; Vineyard Boulevard; Butterfield Road from Tennant Avenue to Watsonville Road <sup>1</sup> ; Watsonville Road from Little Llagas Trail to Monterey Road; Watsonville Road from Little Llagas Trail to Butter
Significance:	Provide access to Business Park: links to East/West and North/South connectors. Important for home/work commuters
Implementation Measures:	Class 2 Lane improvements; Traffic signals <sup>2</sup> at Tennant Avenue/Butterfield Road and Watsonville Road/Butterfield Road
Length:	Class 2: 9243'
Cost:	\$29,106
Notes:	<sup>1</sup> Future road improvement costs are not included: bicycle improvements should be part of overall transportation projects; <sup>2</sup> Planned by city as part of transportation improvements

## 12 - West Trail to East Trail Connection

Designation and Description:	Class 1: Silveira Park Trail Class 2: Monterey Road from Silveira Park Trail to Middle Avenue (Costs included in detail sheet #10); Middle Avenue to Ten
Significance:	Portion of the city perimeter trail system. Important West Trail (Little Llagas Trail) to East Trail (Tennant Creek Trail) connection. Trails offer important recreational and commuter opportunities
Implementation Measures:	Class 1 Shared-use path improvements; Class 2 Lane improvements; Traffic signal <sup>1</sup> at Butterfield Road/Middle Avenue; Bicycle/Pedestrian Bridge <sup>2</sup> at Olive Avenue/Silveira Park Trail
Length:	Class 1: 3469'; Class2: 6273'
Cost:	\$952,345
Notes:	<sup>1</sup> Cost not included: planned by city as part of transportation improvements; <sup>2</sup> Bridge may be implemented as a later phase: add \$2,000,000

Legend Insert

# BICYCLE PARKING

Bicycle parking facilities are an important part of the bikeways system, as cyclists need a safe place to park their bicycle when reaching their destination. Different types of facilities are recommended depending on the length of time the bicycle will be parked.

## Bicycle Parking Classifications

There are three classes of bicycle parking facilities as noted in the VTA Bicycle Technical Guidelines:

### Class I

“A method of bicycle parking that protects the entire bicycle and its components from theft, vandalism or inclement weather. Class I bicycle parking is appropriate for long-term (two hours to all day) bicycle parking such as at employment centers, schools and transit stations. It is also important at sites where bicycles are left overnight for several days such as airports and Amtrak stations. Examples are bicycle lockers, rooms with key access for regular bicycle commuters, guarded parking areas, and valet or check-in parking. A common variation of guarded parking is at high schools and elementary schools where racks are placed within a fenced compound to provide more security. The compound is either locked during the day or unofficially guarded by the activity within the school.” Newly developed day use technology enables day use of individual bicycle lockers using smart access devices. An "E-Locker" prototype is currently being evaluated by BART staff.

### Class II

“A bicycle rack to which the frame and at least one wheel can be secured with a user-provided U-lock or padlock and cable. This type of parking is appropriate for short-term parking such as at shopping areas, libraries, parks, and other places where the typical parking duration is less than two hours.”


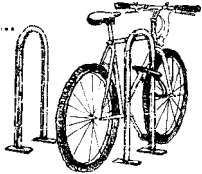

### Class III

“A bicycle rack designed such that only one wheel and not the frame can be locked to the rack. While still used in such situations like schoolyards, they are not secure. They are never recommended except in guarded areas or locked rooms where they are used in Class I situations.”

The following pages illustrate acceptable (Class II) and unacceptable (Class III) types of bicycle racks. Class III racks are not suitable for new installations, and should be retained only at K-12 schools and then preferably inside fenced areas that can be locked and/or guarded between arrival and dismissal hours. Class III racks might also be suitable as part of a Class I fenced/guarded installation at some work places, such as the City Corporation Yard.

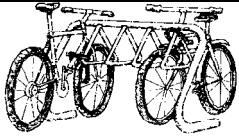

## Morgan Hill Bikeways Plan: Rack Types

Acceptable Types: Require at new sites, and use to replace unacceptable types.


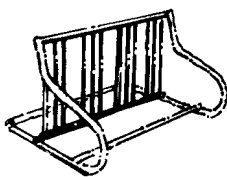

Name	Shape	Remarks
<p>"Wave" *</p> <p><i>also known as "Ribbon" rack</i></p>		<p>SUPPORT: Supports bike's frame acceptably, but does not prevent front-wheel "flop-over".</p> <p>SECURITY: Enables U-locking of frame and wheel.</p> <p>CAPACITY: 1 bike per upright in 2-sided sites. 1 bike per 2 uprights in 1-sided sites unless very wide spacing is specified.</p>
<p>Single Inverted-U</p> <p><i>2 units shown</i></p>		<p>SUPPORT: Supports bike's frame acceptably, but does not prevent front-wheel "flop-over". Ideal rack for downtown sidewalk edge by car parking (orient plane of "U" parallel to curb in such sites).</p> <p>SECURITY: Enables U-locking of frame and wheel.</p> <p>CAPACITY: 2 bikes per "U" with ease, 4 if cyclists know how.</p>
<p>Multiple Inverted-U</p>		<p>SUPPORT: Supports bike's frame acceptably, prevents front-wheel "flop-over" once bike is locked.</p> <p>SECURITY: Enables U-locking of frame and wheel.</p> <p>CAPACITY: 2 bikes per "U" in 2-sided sites, 1 to 1.5 bikes per "U" in 1-sided sites due to difficulty of backing in every 2<sup>nd</sup> bike. Avoid versions with narrow spacings - 36" U-to-U recommended.</p>



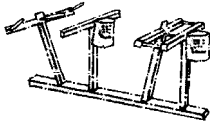
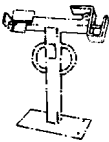
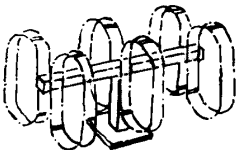
Acceptable Types: Require at new sites, and use to replace unacceptable types.

Name	Shape	Remarks
"Hanging Triangle"		<p>SUPPORT: Bikes lean against triangles suspended from top bar. Additional 2 bikes can lean against ends. Front wheels cannot flop over once bike is locked.</p> <p>SECURITY: U-lock through rack triangle, bike frame, and wheel.</p> <p>CAPACITY: 1 bike per triangle in 2-sided sites. 1 per 2 triangles in 1-sided sites. Add 2 bikes (for ends) in both cases.</p>
<p>Creative Pipe Lightning Bolt™</p> <p><i>2-bike 1-sided perpendicular unit shown</i></p>		<p>SUPPORT: 3-point (down tube against post, plus 2 points on wheel well). Enables use of both hands to lock bike and remove cargo without risk of bike toppling. Front baskets clear tops of posts.</p> <p>SECURITY: Loop on post enables U-locking of frame and front or back wheel. Posts slant back to accommodate all frame sizes.</p> <p>CAPACITY: 1 bike per post.</p> <p>OTHER: Available in 1-sided, 2-sided, and 1-sided-diagonal models for 2 to 8 bikes, all using same post-and-wheel-well module. Stanford University's standard rack.</p>

Unacceptable Types: Recommend replacement at all sites unless noted below.

Name	Shape	Remarks
<p>"Arc" *</p> <p><i>Single position shown</i></p>		<p>SUPPORT: One wheel, poorly. Bike can easily be pushed over by vandals. Suitable only as a display stand inside a bike shop.</p> <p>LOCKING: Cannot lock frame.</p> <p>CAPACITY: 1 bike per wheel holder.</p>
<p>"Comb" *</p> <p><i>also known as "Dishrack", "Ladder", "Wheelbender"</i></p> <p><i>One of many variations shown</i></p>		<p>SUPPORT: Supports only wheel except at ends. Bikes easily pushed over, "pretzeling" wheel, hence "wheelbender" name.</p> <p>SECURITY: Must lift bike over rack to lock frame, or else may lock only the wheel (rest of bike can be stolen), except at ends.</p> <p>CAPACITY: 1 bike per foot in 2-sided sites, 1 per 2 feet if 1-sided. Users often lock sideways against the "comb", blocking others.</p> <p>RECOMMENDATION: Retain at schools especially if in fenced and locked compound or in direct view of office staff.</p>
<p>"PW Loop-1"*,</p> <p>"PW Loop-2"*</p>		<p>SUPPORT: Supports bike acceptably by one wheel.</p> <p>SECURITY: Enables U-locking of frame <i>but only if "stirrup" faces frame</i>. 1-sided often set up backwards, defeating this. Rod easily cut. Wheel holders removable if nuts not immobilized.</p> <p>CAPACITY: 1 bike per wheel holder</p> <p>RECOMMENDATION: Retain at schools especially if in fenced and locked compound or in direct view of office staff.</p>

Unacceptable Types: Recommend replacement at all sites unless noted below

Name	Shape	Remarks
<p>"Rack III"</p> <p><i>2-bike unit shown</i></p>		<p>SUPPORT: Supports bike frame and captures wheels between T-bars (1 fixed, 1 movable), but many "mountain bikes" do not fit.</p> <p>SECURITY: Captures frame and both wheels. Protects padlock, but most cyclists now use U-locks. Large U-locks fit around both T-bars, but few know this. Hence not secure for typical user.</p> <p>CAPACITY: 1 bike per pair of T-bars</p>
<p>"Rally-2" *</p> <p><i>2-bike unit shown</i></p>		<p>SUPPORT: Bracket is intended to support the bike's down tube, but many mountain bikes are too large to fit. Scratches paint.</p> <p>SECURITY: Cannot U-lock bike frame.</p> <p>CAPACITY: 1 bike per down-tube bracket (usually seen in pairs)</p>
<p>"Side Loop-1"*, "Side Loop-2"</p> <p><i>2-sided shown; 1-sided available</i></p>		<p>SUPPORT: Supports only the end of one wheel.</p> <p>SECURITY: Cannot U-lock bike frame. Steel rod easily cut by hacksaw or bolt cutters.</p> <p>CAPACITY: 1 bike per wheel holder.</p>

NOTE: Types whose name is followed by "\*" were encountered during the inventory

## Inventory of Existing Bicycle Parking Facilities

The following inventory indicates the location and quality of existing bicycle parking facilities at primary public, commercial and work place locations. The following conclusions can be drawn from the inventory:

### Schools

All schools provide bicycle parking, but only to accommodate a low ridership percentage of total enrollment. The location of racks at some schools does not provide adequate security.

### Commercial

While many commercial areas provide bicycle racks, nearly all are a Class III (unacceptable) type, or are improperly installed.

### Civic Buildings

While bike racks are provided at some civic buildings, secure (Class I) facilities for employees are not provided. The bike racks are Class III instead of Class II.

### Parks

Most neighborhood and community parks do not currently provide adequate bicycle parking facilities.

### Transit Centers

The Caltrain station appears to have adequate Class I parking, but the Downtown Transit Center does not.

### Workplaces

Some work places do provide bicycle parking. Specialized allows bicycle parking inside the building, which is usually the least expensive way for an employer to provide Class I (secure) parking.

### Showers & Changing Facilities

While these were not inventoried, one can assume that showers and changing facilities are provided at some work places and the high school.

Map Insert

## Bicycle Parking and Storage Inventory

		Bike Racks		Enrollment			
Site & Map Reference Number		Capacity	Type	Students	Rack %	Remarks	Recommendations Summary
	SCHOOL						
1	Burnett ES	15	Comb	500	3%	In fenced area by child development center	Work with MHUSD to increase number of racks where demand dictates, and to reorganize racks where appropriate to increase security and safety with respect to motor vehicle drop-off and pick-up activity. Where possible, racks should be within the courtyard or "interior" created by school buildings. It is good for racks to be either in fenced and lockable compounds, or directly visible to administrative staff, or both. Fenced compounds should be locked or monitored except during AM or PM school commute times.
2	El Toro ES	30	PW Loop-2	670	4%	2-sided access (good)	
3	Jackson ES	5	Comb	570	1%	10' comb installed 1-sided	
4	Machado ES	10	Comb	NA		School is on Sycamore Avenue, a rural road unsuitable for cycling by most elementary kids.	
5	Nordstrom ES	20	Comb	730	3%	In direct view of office (good)	
6	Paradise Valley ES	30	Comb	730	4%	2 10' combs, 1 blocked on 1 side	
7	South County Christian	4	Comb	NA		8' comb behind handicap parking - car conflict	
8	St. Catherine	7	Comb	NA		14' comb installed 1-sided	
9	Walsh ES	15	Comb	500	3%	2-sided access (good)	
10	Britton MS	10	Comb	1,150	1%	20' comb installed against wall	

11	Live Oak HS	54	PW Loop-1, PW Loop-2	2,030	3%	(36) 2-sided, (18) 1- sided. 2 bikes seen 3/10/2000 2:40 pm. Fenced but not locked. Some loops cut.
12	Community Adult School	8	PW Loop1	NA		Suggest moving to courtyard for visibility
32	Gavilan College, Vineyard site	0		NA		

		Bike Racks					
Site & Map Reference Number		Capacity	Type			Remarks	Recommendations Summary
	COMMERCIAL (selected)						
13	Condit/Dunne (3 corners)						Require Class II racks for all new development. Encourage retrofit of Class III to Class II racks where feasible.  Provide four Class II bicycle racks in the downtown area along Monterey Road.
	McDonald's	6	Wave			(The only acceptable bike rack we saw...)	
	Jack In The Box, Taco Bell, Subway, Pizza Hut, Coffee Express, Carl's Jr.	0					
14	Tennant & Monterey						
	24 Hour Nautilus	4	PW Loop-1			1-sided, but backwards so can't U-lock frame	
	Betsy's Restaurant	0				No rack, but 2 bikes parked on kickstands	
	BJ Video	9	Arc				
	Cinema 6	4	PW Loop-1			1-sided, but backwards so can't U-lock frame	
	Commonwealth Credit Union	9	Arc				
	Friendly Fred's Hot Dogs	0					
	Rosso's Furniture	9	Arc				
	Salad bar near Sizzler	9	Arc				
15	Cochrane & Sutter						
	Mervyn's	9	PW Loop-1			3 sets of 3	
	GNC	3	PW Loop-1			1 set of 3	
	McDonald's	6	Comb			At sidewalk, so only 1 bike can lock crosswise	



		Bike Racks					
Site & Map Reference Number		Capacity	Type			Remarks	Recommendations Summary
	COMMERCIAL (selected)						
	Other businesses along Monterey Road						
16	Sutter Hill Plaza, 15700 Monterey	16	Wave-8			2 racks	Require Class II racks for all new development. Encourage retrofit of Class III to Class II racks where feasible.
17	Century Office Plaza, 16360 Monterey	3	Comb			South side, in back	
18	US Post Office, 16600 Monterey	7	Concrete pod			Useless for securing a bike	
19	Prudential Real Estate, Monterey @ 1st	6	Comb				
20	South Valley Bikes, 17395 Monterey Rd.	5	Comb				
21	Albertson's/ Togo's, Monterey x Dunne	8	Comb				
22	Morgan Hill Bike Shop, 16825 Monterey Rd	6	Comb				
23	Burger King, Monterey @ Edmunson	8	PW Loop-1				
24	Nob Hill Foods, Monterey near Edmunson	2	Rack-III				
	Nob Hill Foods, Monterey near Edmunson	3	Comb			Unusable without blocking sidewalk	
	McDonald's (Nob Hill center)	9	Comb			7 spaces usable	

Site & Map Reference Number		Bike Racks		Lockers		Remarks	Recommendations Summary
		Capacity	Type	#bikes			
TRANSIT CENTERS							
25	Caltrain Station	0		50			Add an additional locker for two bikes at Downtown Transit Center.
26	Downtown Transit Center	0		2		1 bike locked to tree near bike lockers	
CIVIC BUILDINGS							
27	Library	6	Comb	0			Add lockers or other Class I facility for at least 6-8 bikes at Library/City Hall complex. Change Class III racks to Class II. Add Class II facility at Police Station and bicycle locker if employees cannot park bicycles inside building. Provide Class I parking (possibly a rack within the fenced corporation yard) at the City's Public Works office. Provide adequate bicycle parking facilities at Saint Louse site for determined use.
27	City Hall	10	Comb	0			
33	Police Station	0		0			
34	St. Louise Medical Center	0		0			
MAJOR PARKS							
28	Community Park	60	Comb			Currently located against fence by MHUSD bus yard	Class II racks for 25 bikes (minimum 3 racks, distribute throughout park)
35	Diana Park	0					Class II racks for 7 bikes
36	Nordstrom Park	0					Class II racks for 7 bikes
37	Oak Creek Park	14	Ribbon				Class II racks for 7 bikes near Excalibur entrance
38	Paradise Park	0					Class II racks for 10 bikes
39	Galvan Park	0					Class II racks for 25 bikes (minimum 3 racks, distribute throughout park)

		Bike Racks		Lockers			
Site & Map Reference Number		Capacity	Type	#bikes		Remarks	Recommendations Summary
	WORKPLACES (see also "Other Businesses" above)						
29	Anritsu, 490 Jarvis	12	Rally-2	0		Great rack site - under roof overhang in clear view of workers in building.	Encourage Class I facilities at all workplaces based on type and size of facility (see VTA guidelines). Encourage showers and changing facilities where feasible. Showers enable active lunchtime and before/after work fitness and recreation activity.
30	North Coast Co, 18305 Sutter	4	Comb	0		Employee entrance, SW corner of building	
31	Specialized Bicycles	8	PW-Loop			By main entrance, for visitors. 2 spaces blocked	
	Specialized Bicycles			130*		In-office bike parking permitted; est. 130 do so	

*For images and descriptions of each rack type, see the document titled "Morgan Hill Bikeways Master Plan: Rack Types"*

## Recommendations

### Schools

Work with MHUSD to increase number of racks where demand dictates, and to reorganize racks where appropriate to increase security and safety with respect to motor vehicle drop off and pick up activity. Where possible, racks should be within the courtyard or "interior" created by school buildings. It is good for racks to be either in fenced and lockable compounds, or directly visible to administrative staff, or both. Fenced compounds should be locked or monitored except during AM or PM school commute times.

### Commercial

Require Class II racks for all new development. Encourage retrofit of Class III to Class II racks where feasible. Provide at least four Class II bicycle racks along Monterey Road in the Downtown area.

### Transit Center

Add an additional locker for two bikes at Downtown Transit Center.

### Civic Buildings

Add lockers or other Class I facility for at least 6-8 bikes at Library/City Hall complex. Change Class III racks to Class II. Add Class II facility at police station and bicycle locker if employees cannot park bicycles inside building. Provide class I parking (possibly a rack within the fenced corporation yard) at the City's public works office.

### Parks

Provide Class II racks at all neighborhood and community parks (smaller pocket parks are usually accessed by walking from immediately adjacent residential neighborhoods and probably do not require bicycle racks). Require Class II racks for all new Home Owner's Association (HOA) parks. Remove Class III racks from Community Park. Consider using Community Park racks inside the City Corporation Yard as a fenced, gated Class I "secure" facility.

At existing neighborhood and community parks provide Class II racks to accommodate at least the following capacities:

Community Park	25 bikes (minimum 3 racks, distribute throughout park)
Galvan Park	25 bikes (minimum 3 racks, located near ball field/MASCA Center, YMCA/Senior Center, and play areas)
Nordstrom Park	7 bikes

Oak Creek Park	7 additional near Excalibur entrance
Paradise Park	10 bikes
Diana Park	7 bikes

Also provide a Class II bicycle rack at neighborhood mini parks where feasible, such as Howard Weichert Park and Jackson Park.

## Workplaces

Encourage Class I facilities at all workplaces based on type and size of facility (see VTA guidelines). Encourage showers and changing facilities where feasible. Showers enable active lunchtime and before/after work fitness and recreation activity.

In addition to changing facilities, which can often be provided by a restroom, some bike commuters need permanently assignable clothing storage lockers. As a general rule, more bike commuters need clothes lockers than need showers—a shower becomes a necessity only beyond 5 miles or so, depending on the exertion level of one's commute. Commuter clothing lockers should be 18" deep; any shallower and hangers will not fit. For many employees, a half-height (36" high) locker is sufficient.

The following table from the VTA Guidelines provides further guidance for bicycle parking at many different types of land uses.

## Bike Rack Placement

Equally important to selecting an appropriate bike rack is proper installation. Many of the bike racks observed in Morgan Hill are not installed for functional use. The VTA Bicycle Technical Guidelines Bike Rack Details and Bike Rack Placement criteria should be observed.

Bike parking recommendations insert

# DESIGN & MAINTENANCE

Design	<p>Design of the bikeways network should be based on an agreed upon set of standards to maximize efficiency, consistency and safety.</p> <p>The Bicycle Technical Guidelines prepared by the Santa Clara Valley Transportation Authority (VTA) are an excellent source of design standards for nearly every cycling condition and should be adopted as a standard for Morgan Hill.</p> <p>In addition to the VTA Standards, there are some additional design issues that should be addressed:</p>
Cul-de-sacs	<p>Where cul-de-sacs are used, a public trail connection should be provided allowing pedestrian and bicycle access between cul-de-sacs, or from the cul-de-sac to an adjacent public amenity, such as a park or trail, as in the Paradise Park neighborhood. Curb cuts should be provided for wheelchair and bicycle access.</p>
Way-Finding System	<p>A way-finding system should be developed for the City's bikeways network. The way-finding system should include signage along paths, lanes and routes indicating key destination points. The way-finding signs could be incorporated with bike lane and bike route signage that is recommended in the Highway Design Manual. The way-finding system should categorize bikeways by level of difficulty, perhaps through color coding. Routes intended for experienced cyclists only should indicate alternate routes for less experienced cyclists.</p> <p>In addition to the way-finding signage, a public bikeways map should be developed suitable for public distribution. This will be different than the planning map in the Master Plan as it will show existing bikeways only, and should be coordinated with the signage system to indicate key destinations and levels of difficulty. The map should also include cycling rules and safety tips. The map can be distributed at bike shops, hotels, restaurants, and other key locations. The bikeways map could be coordinated with the Chamber of Commerce's roadway map that is distributed at several locations and includes advertising to cover the costs of printing.</p>

## Maintenance

Maintenance is key to a safe and enduring bikeways system. The VTA Bicycle Technical Guidelines establish maintenance standards and recommend frequency of maintenance activities for lanes and routes. The following table is from the Bicycle Technical Guidelines.

### Frequency of Maintenance Activities

Respond to hazardous pavement failure reports	Respond to 100% of reports within 8 hours of report
Maintain clean walkways/roadside areas	80% of areas maintained to a “satisfactory” level as defined by a photographic standard
Sweep roadways	100% of roadways every two weeks, with 90% maintained to a “satisfactory” level as defined by a photographic standard
Maintain arterial street traffic markings	100% of markings annually
Maintain non-arterial street traffic markings	75% of markings every two years
Repair deteriorated non-traffic control signs	100% within 30 days of report/complaint
Maintain landscaping encroachment onto roadway or that obscures sight distance	100% within 24 hours of report
Sweep during construction	Daily

## Street Sweeping

Currently all streets with curbs in the City are swept every two weeks. As a standard practice, street sweeping should include the full width of the bicycle travel area, and not just the parking lane. Streets with no curb are not swept since the sweeping mechanism requires a curb to operate properly. This means that many of the rural roads with shoulders or wide outside lanes are not swept. Many of these occur outside of the City limits and are maintained by the County.

## City/County Coordination

Since many of the recommended bikeways are outside the City limits, strong coordination is needed between the City and County to respond quickly to hazardous roadway conditions.



## Hazard Hotline

A “hazard hotline” operated by the City’s Public Works Department is recommended as a means for the public to report hazardous cycling conditions. The “hotline” would be publicized as a part of the way-finding system. Hazardous conditions and suggestions could also be reported through the City’s web site and an email link. City and County standards for response time should be established and regularly evaluated.

## Bicycle Paths

Bicycle paths also require regular maintenance including pavement repair, striping, adjacent vegetation maintenance, and litter pick-up. Path maintenance should be incorporated into the City’s parks maintenance program and budget.

## Adopt-A-Path

Similar to statewide “Adopt-A-Highway” programs, the City could establish an adopt-a-path program to help fund pathway maintenance. Pathway signage should be designed to recognize contributors to the program.

# BICYCLE SAFETY & PROMOTION PROGRAMS

## Background

### Scope

The major focus of Morgan Hill's first bicycle transportation plan is *facilities* - improving the safety, convenience, and pleasantness of the city's street network for cyclists of all ages. However, equally important are *education* and *promotion*: ways to improve the knowledge, skills, and attitudes of bicycle operators and the motor vehicle drivers with whom they share the streets.

This section describes bicycling education and promotion options available for children, adults, motorists, and professionals. It begins by describing program types and content, then lists current programs in Morgan Hill, and elsewhere in the Bay Area. A set of Recommendations follows.

Two Appendices contain a listing of current programs elsewhere in Santa Clara and Alameda Counties, and *Sample Bike Route to School Guidelines*.

### Introduction

In California as in all states, bicyclists are legally drivers. The California Vehicle Code - the basis for driver's tests and traffic law enforcement - gives cyclists the same rights and duties as motor vehicle operators. However, *riding* and *driving* a bicycle are different. Riding involves knowing your capabilities and how your bicycle responds. Driving requires, in addition, knowing where to position your bicycle relative to other traffic through intersections and between them. Bicycle driving follows the same "rules of the road" as motor vehicle driving, with additional considerations due to cyclists' lower speed and acceleration relative to motor vehicles.

Unfortunately, too many U.S. bicyclists do not understand bicycle driving principles, even though adult cyclists can learn them in a single half-day session. To compound the problem, few current-generation U.S. parents are experienced street cyclists - in contrast to many other countries. For this reason public agencies and school districts must take leading roles in designing and implementing bicycle driver education programs. Staff time and resources are

limited, so partnerships with community and civic organizations, businesses, bike clubs and employers are valuable and often essential for success.

The payoff is potentially large: many cycling educators believe that children who are taught how to safely and legally operate bicycles will become better motor vehicle drivers.

## About "Bicycle Education"

Bicycle education programs fall into two general types:

Skills-based	<p><u>Goals:</u> Change behavior and develop competence, most importantly the ability to operate safely and confidently as part of traffic.</p> <p><u>Audience:</u> Cyclists. Because cyclists range in age from preschool to adult, skills-based programs are tailored for age-specific needs.</p> <p><u>Examples:</u> On-bike parking-lot practice, escorted teaching rides, bicycle driver education videos</p>
Informational	<p><u>Goals:</u> Develop awareness, provide information, legitimize street cycling</p> <p><u>Audiences:</u> Motorists, parents, child-care providers, community</p> <p><u>Examples:</u> Posters, brochures and promotional videos</p>

We begin by describing the audiences and messages for both types of education, followed by options for delivering each type. We then list existing programs in Santa Clara County, the greater Bay Area, and beyond. We conclude by recommending several measures for Morgan Hill to pursue.

## Skills-based Programs

Children begin to bicycle by learning bicycle riding skills: balancing, steering, braking, turning, safe starting and stopping. Many kids quickly become

competent bicycle riders, but until about third grade (age 9 or 10) they are not ready for independent bicycle driving on the street because they lack the attention span, peripheral vision, and understanding of cause and effect required for operating in traffic. They can, however, learn essential "pre-driving" skills such as checking over each shoulder while steering straight. They can also experience cycling on the street with parents in well-controlled situations.

By third grade most children are ready to learn to drive a bicycle on two-lane residential streets on pre-selected routes to and from school. They should be taught the basic rules of the road in conjunction with hands-on (on-bike) instruction. By the end of fifth grade they are typically ready to learn the skills required for longer trips to middle school, involving distances of two miles or more, four lane streets with moderate traffic, and busier intersections. The middle school transition provides a "teachable moment" to impart this knowledge. By seventh grade, most children can be taught to safely handle most streets and traffic flows.

Programs for school-age children are best handled by schools or day care centers, but are often compromised by the time constraints of existing curriculum and by the unfamiliarity of instructors with sound bicycle driving principles. "Citation alternative" classes provide a way to reach youth cyclists who are not following the rules of the road.

Adult cyclists benefit most from a program designed to impart the responsibilities of bicycle operation, demonstrate how to safely share the road with motor vehicle traffic, and provide tips on the benefits and methods of bicycle commuting. However, programs aimed at adults typically attract only those who are already interested.

Audience	Relevant Bicycling Knowledge and Skills
All Ages	<p>Helmet Promotion</p> <p>Proper helmet fitting and adjustment, plus knowledge that helmets alone do not make a cyclist safe.</p>
Parents and child-care providers of young cyclists	<p>Basic bicycle fit and equipment safety check</p> <p>Ways of teaching a child how to mount, start, balance, brake, stop, turn, and dismount a bicycle - and why training wheels are counterproductive.</p> <p>Knowledge of common child cyclist errors, on and off streets</p> <p>Knowledge of children's' limitations in perception, attention, and ability to understand situations</p>
Child cyclists, Grades K-2	<p><i>Children in this age range are not ready to "drive" a bike but can learn riding and "pre-driving" skills.</i></p> <p>Pedestrian skills: stopping, looking, crossing, waiting, alertness</p> <p>Basic bicycle fit and equipment safety check</p> <p>Basic control and handling (mounting, dismounting, balancing, starting, stopping, turning, braking, crossing or avoiding surface hazards).</p> <p>"Pre-driving": Shoulder checks, driveway "ride-out" hazard, eye contact</p>
Child cyclists, Grades 3-5	<p><i>Opportunity: Start of 3<sup>rd</sup> grade, when most children can be taught to safely bike to elementary school along quiet neighborhood streets.</i></p> <p>Rules of the Road: Riding on the right, yielding, stop signs and signals, shoulder checks, lateral position changes, pedestrian-style and two-step turns at intersections. Visibility, hand signals. School commutes on prearranged routes</p>
Child cyclists, Grades 6-8 (Middle School)	<p><i>Opportunity: Transition between 5<sup>th</sup> and 6<sup>th</sup> grade, when most children are ready to learn skills for middle school commutes using busier streets.</i></p> <p>Intermediate Rules of the Road: Positioning at intersections by destination, crossing right-turning traffic, where to ride on busier streets. Emergency braking and obstacle avoidance.</p> <p>Compliance with Vehicle Code regulations</p>

Audience	Relevant Bicycling Knowledge and Skills
Child cyclists, High school	Compliance with Vehicle Code regulations including equipment Encouragement of the bicycles as a practical transport mode for work and errand-running trips, by itself and combined with transit
Adult cyclists	Compliance with Vehicle Code regulations including equipment Knowledge of real and perceived safety hazards and how to reduce risk Human performance and practical and enjoyable cycling Where and how to ride on various types of streets and lane widths. Local route and bike/transit options

**Informational programs**      Motorist-oriented programs generally reach their intended audience at specific points, i.e. during driver's training courses, driver's licensing exams and traffic school courses for violators.

Police Cyclist training prepares law enforcement personnel for on-bike patrol and apprehension of suspects. Its week-long curriculum incorporates bicycle driver education lessons comparable to non-police adult cycling classes, so an officer with such training becomes a valuable resource for teaching bicycle driver education to the public at large.

Lastly, promotions such as radio and television Public Service Announcements, "Bike To Work" and "Bike To School" days, and other events focused on bikes as utility transportation, impart the message that bikes belong on streets, and are an accepted transportation choice in the community.

<b>Audience</b>	<b>Relevant Bicycling Knowledge and Skills, or Messages</b>
Motorists	Recognition of cyclists' right to use the road as drivers Understanding, anticipation and avoidance of common cyclist mistakes Understanding and avoidance of common motorist mistakes
Law Enforcement personnel	Recognition of cyclists' right to use the road as drivers Knowledge of Vehicle Code sections regarding cyclists, including often-misinterpreted provisions such as "as far to the right as practicable", legality of occupying a traffic lane, and vehicular left turns Knowledge of common motorist errors and violations which obstruct and endanger cyclists, especially right-of-way violations Knowledge of non-moving-violation issues related to cyclist safety, such as improper car parking, and obstruction of bike lanes
Community	Promotion of cycling as healthy and clean transportation that can also be safe and enjoyable. Acknowledgement of cycling as a first-class transportation mode, and of cyclists as bona-fide users of the public streets.

## Delivery Formats

### *Hands-on Programs*

**Physical education and After-School Events** Although school curriculum is often already planned to fill an entire year of instruction, leaving no time to teach children the skills needed to safely bike to school, this obstacle can be avoided if cycling is incorporated into physical education or other curriculum. There is a good case to be made for teaching street cycling as physical education, because it provides the foundation for a lifetime of fitness-enhancing transportation and recreation. In the past, such programs have often depended on the initiative of a particular teacher who is also a cyclist; this is the case in Berkeley. Children leaving campus for instructional purposes during school hours typically must be supervised by a certified teacher, even if volunteer cycling instructors assist. Liability concerns in some districts may prohibit off-campus travel even for instructional purposes.

**Bike Rodeos** A bicycle rodeo is an outdoor on-bike event that may be offered during school or on a weekend day. Rodeos are usually set up in parking lots and typically include helmet fitting, equipment safety checks, and several on-bike "skill stations" such as slaloms, spiral courses, and "slowest finisher wins" races. Most of these on-bike activities develop and test handling skills but few involve driving skills; if any driving material is included it may be as a short video (see Videos elsewhere in this section). Rodeos are valuable for young "pre-bicycle-driving" children and also for reaching parents and encouraging helmet use and proper fitting.

**Instructional Equipment Trailers** Some school districts, counties, and states maintain trailers stocked with helmets and fully-maintained children's bicycles, which they transport to bicycle driver education class sites. Arriving with all needed equipment frees parents from the need to have purchased bikes and helmets in advance and ensures that all childrens' bikes are in working order without delaying the start of instruction. Such setups can of course be used for off-street-only or on-street education. Hawaii's "OBEEP" (Oahu Bicycle Education and Encouragement Program) uses such a trailer. The city of Dublin is funding a bike equipment trailer with an Office of Traffic Safety grant. Morgan Hill could team with other South County cities to share a trailer.

**Safe Moves "Safety Town"** Safe Moves, a safety education company based in Southern California with client cities throughout the state, goes beyond the basic bike rodeo with its "Safety Town". This elaborate set of props simulates a street intersection complete with lanes, sidewalks, driveways, signs, signals, and movable "car" shapes. Young children are taught pedestrian skills such as driveway awareness and use of pedestrian signals. Older kids use the "street" and "intersection" to practice stopping, looking, yielding, starting, and proper position for their intended destination.

**Off-School Class Rides** During the 1980's one Palo Alto middle school offered a multi-week 10-15 hour class which included supervised practice rides on neighborhood streets in the school's vicinity. Diana Lewiston, an Effective Cycling instructor (see Effective Cycling below) conducted these classes.



**Recreational Bicycle Club Rides And Organized Classes** Most recreational bicycle clubs have scheduled group rides of several levels of distance and difficulty. Adult and teen cyclists can gain on-street experience, endurance and confidence on these rides, and some clubs even offer "parent and tot" rides. The San Jose-based Almaden Cycle Touring Club (ACTC) has a full schedule of organized rides through Morgan Hill and the South County area. Note that there is no guarantee that the ride leader or participants understand the principles of safe and legal bicycle driving.

Some bike clubs also offer organized training classes. The Almaden club's ACTC Academy is a multi-week series that brings novice recreational cyclists up to touring-ready. Academy coordinator Esther Snively has completed the Effective Cycling Road I class.

**Youth "Earn A Bike" And Bike Repair Programs** Many organizations around the country have created programs which offer disadvantaged youths the opportunity to "earn a bike" by learning repair skills and using them to fix up donated or abandoned bicycles. These programs help provide kids with an alternative to gang activity and petty crime, and an opportunity to learn useful work skills. They do not typically include bicycle driver education instruction, but are a potential channel for it. Related options include after-school and drop-in bike repair clinics. The Youth Bicycle Education Network (YBEN) is a national resource group for such operations. Some examples of "Earn-a-Bike" programs are East Palo Alto's Major Taylor Cycling Club, Oakland's Cycles Of Change, and an Oakland Parks Department program.

**"Trips For Kids"** Marin County-based Trips For Kids conducts organized rural and mountain rides for inner-city youth of middle school age or above, to broaden their horizons. Rides of this type could provide a teaching opportunity for bicycle driving principles.

## Informational Programs

**Classroom Presentations** Although they must practice on a bicycle before becoming competent, children can learn the basic rules of the road in a classroom or assembly environment. In many cities this is the only "cycling

education" offered, if any. Because school years are almost entirely preallocated and because few districts have in-house personnel trained as bicycle driving educators, a one-hour presentation once every year or two is all that many children receive. These presentations are often delivered by police officers, some of which are Police Cyclists (patrol officers trained in bicycle driving and law enforcement techniques).

Some "bike safety" presentations teach only helmet use, which is valuable but not sufficient (helmets can reduce head injuries in a crash, but sound bicycle driver education teaches cyclists how to avoid crashes.)

**Youth "Diversion" Programs** City police departments often offer remedial classes for youths stopped for illegal cycling (typically wrong-way or stop sign/signal violations). These are often taught on a Saturday by police personnel, sometimes by a bicycle-mounted patrol officer.

**Warning Stops** Police officers may stop cyclists who are behaving improperly or whose bicycle lacks required equipment such as lights. If an officer is properly prepared, these stops are opportunities for behavior-targeted education. Violation-specific handouts, ideally available in each language spoken in a jurisdiction, can help to reinforce each message. Bike shops sometimes work with law enforcement to add coupons to these handouts, good for discounts on helmets, lights, locks, and accessories.

**"Good Driving" Stops and Rewards** Some police departments make "good bicycle driving" stops of youths, rewarding proper bicycle driver behavior with coupons for attractions and restaurants. Such programs are usually preannounced to the community and coupled with other educational outreach and promotion.

**Videos** Hundreds of general-audience bicycling videos are available but most feature races, athletic training, off-road biking, or bicycle maintenance. Some produced by alternative-transportation programs combine bicycle commuting information with a bit of education. Only a few bike videos teach bicycle driving,

and not all do so competently. Here are five that do; all are available for \$30 or less.

Effective Cycling (TRT 45 minutes, for adults and older teens)

This is the Effective Cycling Road I class video, a.k.a. "The Effective Cycling Movie". The running time of 45 minutes is divided into short segments suitable for a multi-session class or self-instruction program. These include getting ready to ride; basic handling and emergency maneuvers; the five traffic principles; bike lanes and bike paths; night riding; riding in the rain; hills, and group riding.

Getting There By Bike (TRT 20 minutes, for adults and older-teens)

Pedal Smarts (TRT 15 minutes, for middle-school age)

The Bicycle Zone (TRT 12 minutes, for elementary age)

Jeanne LePage, a professional videographer who was formerly the bicycle coordinator at the University of California Santa Cruz, created these three videos. The videos each present bicycle driving principles and helmet use, with running times and themes tailored for their respective age groups. All three are notable for their multicultural casts and a "What if Cars Didn't Follow Any Rules" cartoon segment. "Getting There" features actors of diverse ages including an older woman motorist character who offers both cyclist and motorist perspectives. These videos are owned by the City and are broadcast on Channel 17.

Trucks and Bicycles: Sharing the Road

(TRT 20 minutes, for adults, older teens, and professional drivers)

The American Trucking Association (ATA) created this excellent (but unfortunately out-of-print) video. Its narrator and main actor is a real-life bicycle racer who is also a professional truck driver. The running time is split evenly into cyclist and truck driver viewpoints; both segments offer technically sound driving, handling and passing tips.

**Bicycle Route Maps** Bicycle route maps ("bike maps" for short) are one of the items most frequently requested by commuter and recreational cyclists. They reveal routes and shortcuts that cyclists would otherwise have to discover by trial

and error or by driving. Many show facility type (e.g. striped bike lane or shoulder, sign-only bike route, or separate mixed-use path) and some also indicate peak traffic volumes. Many maps also include detailed bicycle driver information, typically on the back.

Most Santa Clara County cities publish bike route maps and typically make them available at no charge through their Public Works departments. The Santa Clara Valley Transportation Authority (VTA) publishes a free countywide map. The East Bay Bicycle Coalition publishes two maps, "West of the Hills" and "East of the Hills", which together cover Alameda and Contra Costa Counties. These are sold retail in bike shops, as is the Krebs Cycle Touring series that covers the entire Bay Area including Santa Clara County. In addition to street cycling maps there are also mountain biking trail maps.

Some cities have gone beyond the traditional folding paper map. San Francisco and San Jose also print their maps in their Pacific Bell telephone books. The bike maps of Pleasanton, San Jose, Sunnyvale and Santa Clara County are available on the Internet; links to these can be found on the Silicon Valley Bicycle Coalition website at <http://www.svbcbikes.org>.

Production cost is an issue. Although most cities absorb this cost and distribute their bike maps free of charge, Cupertino's bike map is published by its Chamber of Commerce, which incorporates advertising for local businesses. This approach may be feasible in Morgan Hill, since the Chamber of Commerce already publishes a roadway map. The San Mateo County bike map and San Francisco's Walking and Bicycling Guide, like EBBC's two maps, are sold at retail in bicycle shops.

**Web Resources**     **Bicycling Safety** - a web guide on how to ride a bicycle safely in traffic. Author: Bill Zaumen. <http://www.svbcbikes.org/bked>

Comprehensive  
(Informational Plus  
Hands-on Programs)

**The Basics Of Bicycling**     The Bicycle Federation of America (BFA) created a curriculum called "The Basics of Bicycling", which includes in-class and on-

bike/off-street practice. Many school districts base their programs on this material, which includes a comprehensive instructor guide and lesson plans. Information is available at <http://www.bikefed.org>.

**Effective Cycling™** Effective Cycling™ ("EC") is a standardized bicycle driver education curriculum for adults and children. It was created in the 1970s by John Forester, a cyclist, bicycle racer, transportation engineer, and past president of the League of American Bicyclists (LAB), the U.S. national cycling advocacy organization. Forester's original Effective Cycling class covered all aspects of cycling from bicycle driving skills to handling, maintenance, nutrition and physiology. Knowledge of its bicycle driving material was tested on a multiple-choice written test, a parking-lot maneuvering test, and an on-street road examination. Because of its encyclopedic scope, a full EC class was a 33-hour multi-week production which understandably attracted only the most dedicated instructors and students due to the time commitment. EC in this format probably reached several thousand cyclists; several hundred individuals took the time to not only pass the course but to become Effective Cycling Instructors (ECIs), certified by earlier ECIs back to ECI #1, John Forester himself.

John Forester also developed and taught youth cycling classes; here is a fairly recent email posting of his on this topic:

*Date: Wed, 18 Aug 1999 20:45:17 -0700  
From: John Forester [forester@johnforester.com](mailto:forester@johnforester.com)  
Subject: Cycling training for children*

Twenty years ago I worked out the sequence and method for teaching children their first lessons in traffic operation, as if they had no knowledge at the start. The method worked out taught children of grades 3, 5 and 7 to cycle appropriately on roads and in traffic appropriate for their ages. Grade 3 children qualified for 2-lane residential roads, grade 5 children qualified for 4-lane roads with medium-speed traffic, while grade 7 children qualified for almost any reasonable road and traffic condition. The proof was, in each case, passing the normal EC test on roads of the specified character. My class average scores were about 95%, on a test with 70% minimum passing, and on which the local populations of adult cyclists riding to work scored flunking scores of 55% to 60%. There's no mystery to this. See my web site <http://www.johnforester.com> and go to education.

*John Forester  
7585 Church St., Lemon Grove CA 91945-2306  
619-644-5481 [forester@johnforester.com](mailto:forester@johnforester.com)*

In the mid-1990s the League's Education Committee modularized Effective Cycling to attract more students and instructors, while endeavoring to preserve the essential bicycle driving material. A national-level instructor certification team was created to "train the trainers" at regional seminars, and several hundred more ECIs have been certified in the ensuing years (the author of this chapter is one). There are several active ECIs in the greater Bay Area; EC information and an instructor directory are available on the League's website: <http://www.bikeleague.org> (follow links to Education).

The new EC's core 10-hour "Road I" module teaches adults and older teens how to drive a bicycle safely and confidently on the public streets, and is typically offered in a two-day weekend or two-weeknight-plus-Saturday format. It includes five or more hours of off- and on-street practice, plus written, handling, and on-street examinations like the original course. Other EC modules include Road II and Road III, Commuting, Kids I (a short parent-orientation class), Kids II (elementary age, 7-10 hours), Kids III (middle school - class not yet ready for publication at this writing), and EC Motorist Education.

(In a dispute with LAB over content, John Forester recently challenged that organization's rights to use his trademarked program name. Forester plans to return Effective Cycling to its roots as a comprehensive seminar. The League will continue its curriculum but may change the name. LAB recently announced a partnership with NHTSA, the National Highway Traffic Safety Institute, which should provide resources to continue and professionalize its bicycle driver education courses.)

City or school district programs seeking some level of certification for potential instructors of youth cycling classes might consider requiring successful completion of an EC Road I class, whatever its new name may be. Especially motivated instructors could go on to become Effective Cycling Instructors.

**Can-Bike (Canada)** The Canadian national cycling organization offers its own bicycle driver education curriculum called Can-Bike ("Can" for "Canada"), roughly comparable to Effective Cycling.

**Police Cyclist Training** Bicycle-mounted patrol forces now number in the hundreds across the country; Alameda, Albany, Berkeley, Dublin, Livermore, Menlo Park, Monterey, Palo Alto, San Francisco and San Jose are but a few local cities which have them. Morgan Hill officers have also undergone this training. Police Cyclist training is offered by two organizations; one is IPMBA, the International Police Mountain Bike Association, a spin-off of the League of American Bicyclists.

Such training may encompass an entire week, and is equivalent to an Effective Cycling course combined with high-performance maneuvering and police techniques such as pursuit, rapid dismounting, situation control, and disarming of suspects. Sergeant Joe Martin of the Hayward Police Department is a police cycling instructor and offers a free 20-minute informational video addressing police and legal issues for cities considering bicycle-mounted patrols.

## Promotions

**Helmet Giveaways & Discounts; Link To Education** Bicycle helmet use is required by California law for children 18 and under. Over the past decade, this law and the popularity of recreational cycling have combined to drive the retail price of helmets from the \$50 range to the mid-\$20s, and standards-compliant helmets are now available at stores such as Wal-Mart in addition to the traditional bike shop. Still, the cost of helmets remains a significant barrier to low-income families who may struggle just to afford bikes for their children. Many public health agencies and police departments offer free or discounted helmets to children and parents, often at bicycle rodeos. Several companies offer fully certified child helmets at bulk costs of as low as \$5.

If agency-provided free helmets are "earned" by attending a bicycle safety presentation, they become an incentive for education. The City of Berkeley offers a monthly one-hour bike safety workshop for low-income families, and at the end the children receive a free fitted helmet.

**National Bike Month/Bike To Work Day/Bike To School Day** May is National Bike Month, during which Americans are encouraged to ride a bike at least once.

The third week is typically when cities and other jurisdictions hold Bike To Work Day promotions, often on Tuesday. In recent years this promotion has been expanded to Bike to School Day as well.

California's statewide Bike To Work Day promotion is coordinated by the California Bicycle Coalition (CBC), based in Sacramento ([www.calbike.org](http://www.calbike.org)). Bay Area Bike To Work Week events are coordinated by RIDES For Bay Area Commuters (RIDES, Inc.) based in Oakland ([www.rides.org](http://www.rides.org)).

**Walk Our Children to School Day** The growing movement to restore and improve pedestrian safety and "walkability" in neighborhoods and cities has spawned a worldwide event devoted to encouraging parents to walk with their children to school. International Walk To School Day will occur on October 4, 2000. This is another opportunity to promote cycling to school, and October is just after the start of the school year, unlike May's Bike To School Day.

**Street Fairs with Attended Bike Parking** Several bicycle transportation advocacy groups in the Bay Area, including the Silicon Valley Bicycle Coalition, work with city event promoters to offer free guarded bicycle parking at street fairs and athletic events. These groups usually offer informational pamphlets about bicycle driving and safety at their tables.

**"Charity" Rides** Many charity campaigns have organized walking and cycling events to raise funds through mileage-based pledges. These events are as yet untapped as opportunities for street cycling education, but could provide a new channel if pamphlets or other materials were supplied to the organizers.

## Current Programs in Morgan Hill

<p><u>Police Department</u></p> <p>Officer Rod Rummel, Traffic Safety 408.776.7323</p>	<p>Helmet law enforcement - children under 18 not wearing a helmet are required to attend a bicycle rodeo or receive a citation.</p> <p>Distributed 50 helmets last year and 100 this year. City does not offer helmets for sale (bike shops and other retail outlets do).</p>
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Debbi Simon Crime Prevention & Disaster Preparedness	Bicycle rodeo presented by Safe Moves. Schools and church groups can contact Morgan Hill Police Department for rodeos. Annual Child Safety Fair Participate in Santa Clara County's Traffic Safe Communities Network, an information-sharing group that has a bicycle and pedestrian safety subgroup.
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## Recommendations

### Education

1. Develop age-specific bicycle safety education for school-age children which includes the following elements:

Grades	Recommendations
K-3	Educate parents about age, readiness levels, and essential skills for child cyclists. <u>Effective Cycling Kids I</u> (Parent class) For Grade 3 and up, incorporate school bicycle commute promotion in parent packet distributed at start of school year. Teach children basic bicycle handling (bike rodeos, parking-lot practice) Pedestrian safety and traffic awareness Helmet promotion and fitting, including proper adjustment Safe Moves, ALTRANS, or other classroom and on-bike programs (No biking to school until Grade 3 or 4)
4-5	Escorted teaching ride on students' school commute route <u>Basics Of Bicycling</u> , <u>Effective Cycling Kids II</u> , or similar course
6-8 (Middle School)	Escorted teaching rides for incoming middle school students prior to school year, to familiarize them with their new commute routes. Evaluate <u>Effective Cycling Kids III</u> curriculum when available.
High school	Organize a school cycling club Classes on touring, racing, maintenance by volunteer bicycle advocates or bike shop staff. Offer <u>Effective Cycling Road I</u> classes

## Bicycle Helmets & Lighting

1. Partner with Morgan Hill's bicycle shops and other retailers that sell helmets, to create incentives such as discount coupons for obtaining and using helmets, lights, and locks. Consider a citywide promotion to encourage the use of red blinking taillights.

## Program Development

2. Have at least one school district instructor take the Effective Cycling Road I class, and ideally also become an Effective Cycling Instructor.
3. Network with other cities within Santa Clara County and the greater Bay Area that have programs underway, to determine the best curricula and education providers.
4. Establish District standards for bicycle driver education of school age children by age group (see table above).
5. Create Recommended Bicycle Route To School maps for all schools, with input from Public Works and the city Bicycle Advisory Committee. Update these maps annually as the city's bicycle improvement projects move forward. (See Sample Bike Route To School Guidelines in the Appendix.)
6. Explore multi-city sharing of bicycle safety training equipment (a trailer with childrens' bicycles, helmets, and other gear needed for classes)

## Enforcement

7. Continue citation alternative program and consider expanding its scope  
Continue the Police Department program offers participation in bicycle rodeos as an alternative to citation for helmet-law violations. Consider expanding this to other California Vehicle Code violations including wrong-way riding (with allowances for streets that are not bike-friendly), riding without lights and reflectors at night, and failure to stop at signals or check and yield at stop signs.

8. Equip Police Department with behavior-specific handouts  
The educational value of police contact with youth and adult cyclists can be maximized if traffic and patrol officers have well-written handouts addressing most common bicycle violations (wrong-way, ignoring traffic controls, riding at night without lights). The handouts should address one behavior or set of related behaviors. Handouts

should be available in English and Spanish. Handouts can incorporate bike shop discount coupons for lights, helmets, locks, and reflective accessories.

9. Support the reduction of fine structures for bicycle infractions

Roughly half of bicycle/automobile collisions are caused by cyclists not following the rules of the road, i.e. riding on the wrong side of the street or cycling without lights at night (Source: Federal Highway Administration, "Pedestrian and Bicycle Crash Types of the Early 1990's, Publication No. FHWA-RD-95-163, June 1996). Cyclists have the same responsibilities under the law as motorists, and should be cited for safety-related violations. However, police have been reluctant to cite bicycle offenders, especially children, because they believe it will result in negative publicity for their department. In addition, cyclists have until recently been subject to the same fine levels as motorists, though bicycles rarely injure other parties or inflict significant property damage. In 1994, California law was changed to enable local authorities to reduce fines for bicycle offenses. Yolo County (including the City of Davis) has done so. Morgan Hill and Santa Clara County could develop a bicycle fine structure such that city officers and sheriff deputies will be more willing to impose them.

## Promotion

10. Capitalize on existing annual promotions

These include events such as National Bike Month (May), Bike To Work Day, Bike To School Day, and Walk Our Children To School Day. There is also an annual criterium held locally over the Memorial Day weekend.

11. Explore ways to provide bicycle driver education messages aboard VTA buses

# IMPLEMENTATION

Several mechanisms and funding sources are available to implement the Bikeways Master Plan. A combination of many funding sources will be needed as no single source can be expected to fund all of the recommendations in the Master Plan.

## Bikeways Improvements Incorporated into Larger Roadways Projects

By far the least expensive way to build the bikeways system is to incorporate bikeways improvements as a part of larger roadway projects, such as roadway extensions or expansions, overlay projects and intersection improvements. Due to economies of scale and equipment already in place, it is easier to incorporate bikeways improvements as a part of the overall roadway design, than try to retrofit a previously completed project.

The proposed bikeways improvements should be regularly reviewed and where feasible, incorporated into regularly scheduled city maintenance cycles, such as for roadway overlays and re-striping.

## Improvements Concurrent with Development

Many improvements can be implemented concurrent with development. For example, if a development project requires roadway or intersection improvements, then bikeways improvements should be implemented at the same time. Development applications should be reviewed to ensure that improvements consistent with the Bikeways Master Plan are included in the development package.

## Development Review Checklist

A bicycle facilities development review checklist should be established with the participation of the BAC to be used by City staff to evaluate development applications and their consistency with the Bikeways Master Plan. The development review checklist would provide City staff with a consistent and objective evaluation tool. The checklist should include on-site improvements, such as bicycle parking facilities, and off-site improvements where appropriate, such as roadway striping, signage and intersection improvements. While most

projects would not need to be reviewed by the BAC, the BAC could be incorporated into the development review process for projects that are not clearly in conformance with the Bikeways Master Plan.

## Joint Projects

Many of the proposed bikeways run outside of the City limits. Some of the proposed pathways are on property owned by the Santa Clara Valley Water District. Joint projects should be actively pursued with both the County and the Water District to maximize limited resources. Other partners might include the Morgan Hill Unified School District through Safe Routes to School funding.

## Funding Sources

Several funding sources are available to implement the Bikeways Master Plan.

### General Fund

Capital improvements and maintenance costs could be funded in part through the City's General Fund, although there are numerous competing interests for use of these funds. As noted earlier, the best way to stretch general fund allocations is to incorporate bikeway improvements into larger roadway improvements and regularly scheduled maintenance cycles.

### Redevelopment Agency

Some bikeway improvements may be appropriate for Redevelopment Agency funding, especially if they can be tied to economic development projects, such as improving access to commercial areas. Redevelopment Agency funds cannot be used for maintenance.

### Development Impact Fees

Impact fees are charged for numerous infrastructure impacts of development including traffic. These fees should be reviewed to ensure that bikeways improvements are included in the impact fee schedule and that a proportional amount of impact fee revenues are allocated to bikeways projects.

### Other Public Funding Sources

Numerous funding sources are available to supplement local funds including the following

### Regional Sources

- Bay Area Air Quality Management District (BAAQMD)
- Valley Transportation Authority
- Metropolitan Transportation Commission

## State Sources

- California Bicycle Transportation Account
- Transportation Development Act Local Transportation Funds
- Environmental Enhancement and Mitigation Program
- Habitat Conservation Fund
- Land and Water Conservation Fund
- Safe Routes to School

## Federal Sources

- Transportation Enhancement Act (TEA 21)\*
  - \* There are several different TEA 21 programs, some of which are managed by regional transportation agencies

## Private Funding Sources

Private foundations are also a source of funding, especially for education and safety related programs. The “Guide to Bicycle Program Funding in California” by the Planning and Conservation League Foundation (April 1995) is a resource to research appropriate foundation funding programs.

## Adopt-A-Trail Programs

As noted previously, this type of program may be a means of supporting trail maintenance.

## Revenue-Producing Operations

Revenue producing operations may be considered adjacent to proposed pathways, and might include bicycle rentals, snack and juice bars, or other trail-related businesses. Lease revenues could be used to fund long-term maintenance.